ASSIGNMENT-4

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Write code and connections in wokwi for ultrasonic sensor.

Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

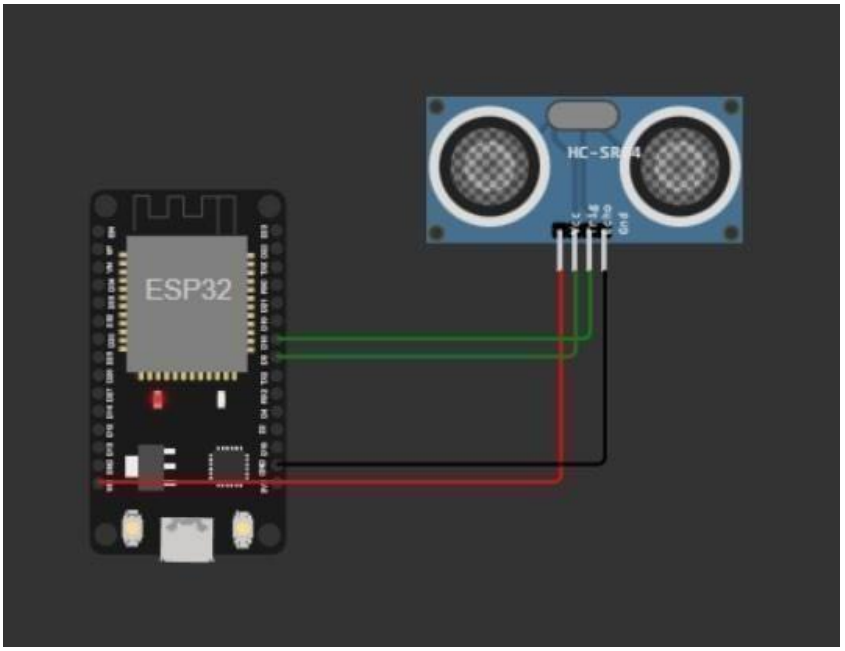
CODE

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient;


#define ORG "nhpwjc"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "USE YOUR ID"
#define TOKEN "USE YOUR TOKEN"
#define speed 0.034


char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char
publishTopic[] = "iot-2/evt/Data/fmt/json"; char topic[] = "iot-
2/cmd/home/fmt/String"; char authMethod[] = "use-token- auth"; char
token[] = TOKEN; char clientId[] = "d:" ORG ":" DEVICE_TYPE ":"
DEVICE_ID; PubSubClient client(server, 1883, wifiClient); void
publishData();
 const int trigpin=5;
const int echopin=18;
String command;
String data=""; long
duration; float dist;


 void
setup()
{
   Serial.begin(115200); pinMode(trigpin,
   OUTPUT);
```

```
  pinMode(echopin,  INPUT);        wifiConnect();
  mqttConnect();
} void  loop()  {        publishData();

  delay(500); if (!client.loop()) {

  mqttConnect(); } }

void wifiConnect() {
  Serial.print("Connecting to "); Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST", "", 6); while (WiFi.status() != WL_CONNECTED)
  { delay(500); Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
}

void mqttConnect() { if
  (!client.connected()) {
    Serial.print("Reconnecting MQTT client to "); Serial.println(server); while
    (!client.connect(clientId, authMethod, token)) { Serial.print("."); delay(500);
    }
    initManagedDevice(); Serial.println(); } }

void        initManagedDevice()      {      if
  (client.subscribe(topic)) {
    // Serial.println(client.subscribe(topic)); Serial.println("subscribe to cmd OK");
  } else {
    Serial.println("subscribe  to      cmd    FAILED");      }        } void
publishData()
{ digitalWrite(trigpin,LOW); digitalWrite(trigpin,HIGH);
```

```
  delayMicroseconds(10); digitalWrite(trigpin,LOW); duration=pulseIn(echopin,HIGH);
  dist=duration*speed/2;
  if(dist<100){
     String payload = "{\"Alert distance\":"; payload += dist; payload
     += "}"; Serial.print("\n");
     Serial.print("Sending payload: ");
     Serial.println(payload);
     if (client.publish(publishTopic, (char*) payload.c_str())) { Serial.println("Publish OK");
     } else {
        Serial.println("Publish FAILED");
     }
  }
}
```

CONNECTIONS



OUTPUT

Sending pay 1oad: { "Alert dist an ce" : 93. 96}
Publish OK

```
Sending payload: {'Alert distance':93.96}
Publish OK
```

```
Sending payload: ('Alert distance':93.96}
```
Publish DK

Sending pay1oad : {"Alert d1 st anc e" : 93. 96}
```
Publish OK
```

Sending pay1oad : (" At ert d1 st anc e" : 93. 96}
```
Publish OK
```